







## DECLARATIVE

## A. Epidemiology

1. Incidence
2. Mortality/ morbidity
3. Risk factors
4. Prevention strategies
5. Anatomy and physiology review

### A. Physiology

1. Alterations in cognitive systems
2. Alterations in cerebral homeostasis
3. Alterations in motor control
4. Central nervous system disorders
  - a. Trauma
  - b. Cerebrovascular disorders
  - c. Tumors
  - d. Infection
  - e. Inflammation
  - f. Degenerative diseases
  - g. Hydrocephalus
5. Peripheral nervous system disorders
6. Neuromuscular junction disorders

## 1. History

- a. General health
  - b. Previous medical conditions
  - c. Medications
  - d. Previous experience with complaint
  - e. Time of onset
  - f. Seizure activity
- Physical
- a. General appearance
  - b. Assess for level of consciousness
    - (1) Mood
    - (2) Thought
    - (3) Perceptions
    - (4) Judgment
    - (5) Memory and attention
  - c. Speech
  - d. Skin
  - e. Posture and gait
  - f. Vital signs
    - (1) Hypertension
    - (2) Hypotension
    - (3) Heart rate/ fast or slow
    - (4) Ventilation rate/ quality

United States Department of Transportation  
National Highway Traffic Safety Administration

- (5) Temperature/ fever
- g. Head/ neck
  - (1) Facial expression
  - (2) Eyes
    - (a) Acuity
    - (b) Fields
    - (c) Position & alignment
    - (d) Iris
    - (e) Pupils
    - (f) Extraocular muscles
  - (3) Ears
    - (a) Auditory acuity
  - (4) Nose
  - (5) Mouth
    - (a) Odors on breath
- h. Thorax and lungs
  - (1) Auscultate
- i. Cardiovascular
  - (1) Heart rate
  - (2) Rhythm
  - (3) Bruits
  - (4) Jugular vein pressure
  - (5) Auscultation
  - (6) ECG monitoring
- j. Abdomen
- k. Nervous
  - (1) Cranial nerves
  - (2) Motor system
    - (a) Muscle tone
    - (b) Muscle strength
    - (c) Flexion
    - (d) Extension
    - (e) Grip
    - (f) Coordination
- l. Assessment tools
  - (1) Pulse oximetry
  - (2) End tidal CO<sub>2</sub>
  - (3) Blood glucose

3. Ongoing assessment

C. Management

- 1. Airway and ventilatory support
  - a. Oxygen
  - b. Positioning
  - c. Assisted ventilation
  - d. Suction
  - e. Advanced airway device
- 2. Circulatory support
  - a. Venous access
  - b. Blood analysis

[illegible]



- (1) Oxygen
  - (2) Positioning
  - (3) Assisted ventilation
  - (4) Suction
  - (5) Advanced airway device
- b. Circulatory support
  - (1) Venous access
  - (2) Blood analysis
- c. Non-pharmacological interventions
  - (1) Positioning
  - (2) Spinal precautions
- d. Pharmacological interventions
  - (1) Anticonvulsants
  - (2) Antiinflammatories
  - (3) Vasodilator
  - (4) Diuretic
  - (5) Skeletal muscle relaxant
  - (6) Hyperglycemic
  - (7) Antihypoglycemic
  - (8) Vitamin
  - (9) Thrombolytics
  - (10) Neuroprotectives
- e. Psychological support
- f. Transport considerations
  - (1) Appropriate mode
  - (2) Appropriate facility

1. Epidemiology
  - a. Incidence
  - b. Mortality/ morbidity
  - c. Risk factors
  - d. Prevention strategies
  - e. Anatomy and physiology review
2. Pathophysiology
  - a. Transient neurological deficits
  - b. Partial disruptions of blood flow
    - (1) Hemorrhagic
    - (2) Vasospasm
    - (3) Subarachnoid
    - (4) Intracerebral
    - (5) Cerebellar
  - c. Partially occlusive
    - (1) Emboli
    - (2) Thrombi
3. Assessment findings
  - a. History
    - (1) General health
    - (2) Previous medical conditions
    - (3) Medications

United States Department of Transportation  
National Highway Traffic Safety Administration

- (4) Previous experience with complaint
    - (5) Time of onset
    - (6) Seizures
    - (7) Headache
    - (8) Nosebleed
  - b. Physical
    - (1) Standard physical exam for patient with potential neurological event
4. Management
  - a. Airway and ventilatory support
    - (1) Oxygen
    - (2) Positioning
    - (3) Assisted ventilation
    - (4) Suction
    - (5) Advanced airway device
  - b. Circulatory support
    - (1) Venous access
    - (2) Blood analysis
  - c. Non-pharmacological interventions
    - (1) Positioning
    - (2) Spinal precautions
  - d. Pharmacological interventions
    - (1) Anticonvulsants
    - (2) Antiinflammatories
    - (3) Diuretic
    - (4) Skeletal muscle relaxant
    - (5) Hyperglycemic
    - (6) Anti-hypoglycemic
    - (7) Vitamin
  - e. Psychological support
  - f. Transport considerations
    - (1) Appropriate mode
    - (2) Appropriate facility

## 1. Epidemiology

- a. Incidence
  - b. Mortality/ morbidity
  - c. Risk factors
  - d. Prevention strategies
  - e. Anatomy and physiology review
2. Pathophysiology
- a. Unexpected electrical discharge of neurons in brain
  - b. Types
    - (1) Generalized
      - (a) Grand mal (tonic-clonic)
        - i) Preictal phase (aura)
        - ii) Tonic phase
        - iii) Clonic phase
        - iv) Postictal phase
      - (b) Tonic

United States Department of Transportation  
National Highway Traffic Safety Administration







- [illegible]



- (c) Limb girdle
  - (d) Myotonic
- (5) Effects on CNS
- (6) Incidence
- (7) Characteristics
- b. Multiple sclerosis
  - (1) Inflammatory disease
  - (2) Immune disorder/ CNS myelin
  - (3) Demyelination of nerve sheaths
  - (4) Progressively deteriorate
  - (5) Effects on CNS
  - (6) Incidence
  - (7) Characteristics
- c. Dystonia
  - (1) Alterations in muscle tone
  - (2) Inhibition of muscle
  - (3) Types
    - (a) Focal
    - (b) Secondary
    - (c) Torsion
    - (d) Spasm
    - (e) Tic
  - (4) Incidence
  - (5) Characteristics
  - (6) Iatrogenic
- d. Parkinson's disease
  - (1) Degenerative disease basal ganglia
  - (2) Dopaminergic nigrostriatal pathway
  - (3) Primary and secondary disorders
  - (4) Incidence
    - (a) Occurs after 40 years
    - (b) Leading cause of neurologic disability >60 years
    - (c) 130 in 100,000 persons
    - (d) Estimated 500,000 in United States
  - (5) Characteristics
- e. Central pain syndrome
  - (1) Trigeminal nerve infection or disease
  - (2) Tic douloureux
  - (3) Causes
    - (a) Tumor
    - (b) Lesions
    - (c) Medications (phenothiazine)
  - (4) Incidents
  - (5) Characteristics
- f. Bell's palsy
  - (1) Facial paralysis
  - (2) Causes
    - (a) Post-trauma
    - (b) Herpes simplex

14

))))))))))

- United States Department of Transportation  
National Highway Traffic Safety Administration  
**Paramedic: National Standard Curriculum**

- (5) Experience with complaint
    - (6) Time of onset
    - (7) Seizure activity
  - b. Physical
    - (1) Standard physical exam for patient with potential neurological event
4. Management
  - a. Airway and ventilatory support
    - (1) Oxygen
    - (2) Positioning
  - b. Circulatory support
    - (1) Venous access
    - (2) Blood analysis
  - c. Non-pharmacological interventions
    - (1) Positioning
  - d. Pharmacological interventions
    - (1) Hyperglycemic
    - (2) Antihypoglycemic
    - (3) Antihistamine (for medication-caused dystonic reactions)
    - (4) Analgesics
    - (5) Steroids
    - (6) Dopaminergics
  - e. Psychological support
  - f. Transport considerations
    - (1) Appropriate mode
    - (2) Appropriate facility

A. Develop management strategies, based on the pathophysiological principles, for the following patient presentations

1. Coma/ decreased level of consciousness
2. Headache
3. Weakness
4. Vertigo
5. Seizure

United States Department of Transportation  
National Highway Traffic Safety Administration  
**Paramedic: National Standard Curriculum**